

ABSTRACT OF THE DISCLOSURE

Methods and apparatus for installing electrically heated composite umbilicals within subsea flowlines containing produced hydrocarbons as immersion heaters to prevent waxes and hydrates from forming within the subsea flowlines that could block the flowlines. The electrically heated composite umbilicals may be installed, or retrofitted, into existing subsea flowlines. Such retrofitted electrically heated composite umbilicals provide an alternative for previously installed, but failed, permanent heating systems. A hydraulic pump installed on the distant end of an electrically heated composite umbilical also provides artificial lift for the produced hydrocarbons. Other electrically heated umbilicals used as immersion heaters are described. Such immersion heater systems may be removed from the well, repaired, and retrofitted into flowlines without removing the flowlines. Near neutrally buoyant electrically heated umbilicals are described which may be installed great distances into flowlines. Different methods of deploying the electrically heated umbilicals are also provided.

**"HIGH POWER UMBILICALS FOR
ELECTRIC FLOWLINE IMMERSION HEATING..."
Rig-2**